DOCUMENT RESUME

ED 311 236 CE 053 236

TITLE Changes in Work Patterns: A Synthesis of Five National Reports on the Service Sector. France, Germany, Japan, Sweden, the United States.

INSTITUTION Organisation for Economic Cooperation and Development, Paris (France). Centre for Educational Research and Innovation.

PUB DATE Feb 89
NOTE 53p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Developed Nations; Educational Needs; Education Work Relationship; *Employment Patterns; Employment Projections; Employment Qualifications; Foreign Countries; *Futures (of Society); Labor Economics; Labor Market; *Labor Needs; Postsecondary Education; *Sales Occupations; Secondary Education; *Service Occupations; Service Workers
IDENTIFIERS *Europe; France; Germany; *Japan; Sweden; United States

ABSTRACT

An analysis of the service sector in five countries (France, Germany, Japan, Sweden, and the United States) was made through synthesis of earlier research on work patterns in the countries. Some of the findings and issues discovered concerned the following: (1) the heterogeneity of the service sector; (2) the progress of part-time work; (3) contracting out by industries; (4) blurring of traditional borders between sectors and also within the service sector itself; (5) regional distribution of services and its impact on employment; (6) the relationship of smaller forms to economic growth; (7) the need for balance in education between adaptable skills and professional work experience; (8) increased internationalization and rationalization, which give priority to product development, marketing, and sales; (9) a general trend toward raising skill levels; (10) "polyvalence"--a broad range of skills needed for midlevel workers; (11) a changing relationship between internal and external markets; (12) increased role of education for success; and (13) substantial growth of female employment. (KC)

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CHANGES IN WORK PATTERNS:

A SYNTHESIS OF FIVE NATIONAL REPORTS ON THE SERVICE SECTOR

France, Germany, Japan, Sweden, The United States

Paris, 1989

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CHANGES IN WORK PATTERNS

SYNTHESIS OF FIVE NATIONAL REPORTS ON THE SERVICE SECTOR

(France, Germany, Japan, Sweden, the United States)

During the last phase of the CERI Project "Changes in Work Patterns and their Educational Implications", exploratory work on the service sector was launched comprised of national studies to gain more insight into changes in work organisation and skill development in relation to the introduction of new technologies. Special emphasis was placed on financial services, business services and health services. In addition, in some cases, research was done in the development of temporary work.

The five participating countries during this phase of the work were: the Federal Republic of Germany, France, Japan, Sweden and the United States. Reports on each have been issued.

This report by the Secretariat is intended both to summarise and to present some preliminary conclusions arising from them. It is made available to the public on the responsibility of the Secretary-General.

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INTRODUCTION

Within the CERI Project "Changes in Work Patterns and their Educational Implications", research studies focusing on the service sector have been conducted in five countries (France, Germany, Japan, Sweden and the United States). At an earlier stage, other studies were carried out in the automobile industry in the same five countries. A common research framework was agreed at a meeting of national experts in October 1985.

The first of these studies included a theoretical reflection on the changing role of human resources in the context of technological change and industrial restructuring in the automobile industry (1). The present study derives from an analytical review of existing research on changes in skills and work patterns in service activities (2). A few significant findings of the automobile industry study highlight the importance of continuing to build our knowledge base with regard to the human element in structural change and labour market adjustments. The introduction of new technologies creates a wide range of options concerning work organisation and the skill development and skill profiles of the people affected. The continued shift of employment from manufacturing to the services and the reinforced penetration of information technology into the service activities will contribute to exposing growing numbers of workers to the effects of new technologies.

As studies so far had largely focused on manufacturing, it was felt that, because of this shift of employment and the growing importance of services, equal attention should be paid to this economic sector in order to obtain a better understanding of the nature of the jobs in this sector and of how they may be filled. Not only occupational change but more far-reaching changes in culture and attitudes may be the result of the processes of change.

The variety of definitions attached to the service sector can be seen in the list used for OECD statistics (ISIC):

Wholesale trade
Retail trade
Restaurants and hotels
Transportation, communication and storage
Finance
Insurance
Business services and real estate
Public administration
Sanitary services
Social and community services
Recreation services
Personal services
International bodies.

In the project outline of this stage of the research it was specified that, "considering the size and the extreme variety of tertiairy activities....a few specific areas have been identified in which significant changes concerning skill development and skill profiles are taking place". These specific areas are:

-- financial services because they are among the largest employers within the service sector, having been forerunners in introducing information technologies, and seen to offer possibilities for cross-border comparison;

-- business services (i.e. services provided to enterprises such as consulting, temporary office work, cleaning and security) because of the fact that they constitute a particularly dynamic segment of the service sector (note: for a more detailed description of "business services" see the French Report, Part 2, A1).;

-- health services because they belong both to the public and the private sector and are undergoing important changes, partly due to new technologies.

In formulating the key research questions, we took as our starting point that skill profiles and skill formation are affected by a number of transformations, e.g., the internationalisation of service activities, the impact of new technologies, the blurring of borderlines between sectors and between usual activities within companies, etc. All of these processes take place in specific socio-cultural contexts and have to be seen in a historical perspective. Specific situations may well be due to both technological change and particular cultural and historical conditions.

The key questions to which we hoped to find answers focused on the typical skill profiles prevailing in the services, how processes of skill formation were influenced and whether it was possible to identify the impact of recent developments upon specific segments of the labour force. In doing so, it was expected that a greater understanding of these problem areas could be obtained and that new light could be shed on similarities and differences between countries.

However, in view of the limitations in time and resources, it was impossible to undertake a great number of in-depth case studies within firms. Therefore, a number of illustrative "mini-case studies" were conducted through expert interviews and company visits in order to develop an understanding for the processes and changes affecting human resources development and utilisation at the grassroots level of the enterprise and for their implications in terms of the key questions outlined above. It should be explicitly stipulated that this project is to be seen in a longer time perspective and should be considered as an exploratory endeavour on the basis of which more systematic comparative studies may be conceived.

The comparability of observations are, of course, limited. For the health sector, for example, only France, Japan and Sweden forwarded data on the general developments in this sector, as was done for the temporary work sector by Japan and France, with a firm-based case study from the United States. Though we had an impressive amount of data at our disposal

with regard to the banking sector and software industries (see the Annex for a detailed breakdown), our findings should be understood as an attempt to verify the underlying hypothesis of this project, namely, that specific national cultures and historical contexts may alter the effects of technological and organisational change upon human resources.

As one of the project's objectives has been to reach a better understanding of both similarities and differences in technological and organisational change within distinct national settings, the findings in this synthesis report certainly have to be intensified through more thorough investigations in the future.

The very detailed and abundant information been presented in some of the national reports does not facilitate the drafting of an accurate synthesis. Any attempt at synthesising only devalues the quality of the original reports. Nonetheless, we will try to present here a guide for reading and understanding the data.

The Secretariat's synthesis report is intended to be an annotated summary that will arouse interest in the individual country reports and encourage their perusal. Chapter I, therefore, briefly presents the main issues and principal findings of all five. Useful suggestions for this chapter (and for Chapter VI as well) have been made by Dr. O. Bertrand of CEREQ. In Chapter II, a predominantly quantitative presentation of the service sector in the five countries is made, focusing on general trends in employment in the service sector.

Chapter III deals exclusively with issues in the domains of education, training and skill formation. Here also attention is drawn to an earlier paper, a Secretariat Note on "Changing Work Patterns and the Role of Education and Training" presented to the Governing Board at its 35th Session in 1984, in which a first preliminary synthesis was presented of the available findings and their educational implications from the work undertaken so far. Also, in the international team's report, a special chapter has been dedicated to education and training. In Chapter IV a presentation is made of the most important findings with regard to the impacts on the labour force and the labour market.

In Chapter V the focus is on (the changes in) characteristics of skill profiles. In an earlier study (2) it had already been found that skill profiles were changing. It was clear from the findings, for example, that there were trends towards more teamwork, upskilling, a shift from specific to more general/polyvalent skills, etc. On the basis of the case studies undertaken in the five countries it might be possible to elaborate somewhat more on these trends by following them sector by sector. It should be noted that -- apart from the research done by the national research teams -- an international team composed of a small group of experts was set up especially for the financial sector. This team visited a limited number of finance companies in each of the five countries. The report of this international team (3) will be much more detailed than can be covered in this synthesis.

In the final chapter, we attempt an inventory of unanswered questions based on a number of hypothetical models. We are grateful to Prof. M. Baethge of SOFI-Gottingen for his suggestions in this respect. Though it would be

logical to pay attention in such a chapter to recommendations for further study, this is expressly not done as these are to be found in the Secretariat's new research agenda (4) for the next stage of this project.

Because of the character of this synthesis, repeated reference will be made to the individual national reports (5) but we will not trouble the reader with page numbers in the text. These will of course be found in the list of references at the end of the report.

Chapter I

MAIN ISSUES AND FINDINGS

The heterogeneity of the service sector is one of the most striking characteristics emerging from the five national reports. Indeed, so varied are the activities of the service sector as a whole that, while employment is constantly growing in absolute and relative terms in all participating countries, some branches in the service sector show a much greater increase than others while some are even on the decrease.

Health services, social services and business services are growing fastest in some countries: over the period 1979-1985 we note an employment growth in the health sector of, respectively, 18.5 and 6.3 per cent for Germany and Sweden for "Restaurants and Hotels" of 11.3, 22.4 and 23.5 per cent for, respectively, Germany, Sweden and the United States. "Wholesale Trade" decreased in Germany by 4.1 per cent over the same period but it increased 12.4 per cent in the United States. In the banking sector, the strongest employment growth took place in the first half of the period 1960-1985. In the last decade, employment growth in this sector has been generally much slower.

Conclusions regarding the service sector, in particular relative to the quantitative aspects, are especially difficult as there are important problems of sources of information, concepts and definitions. This is even more difficult if international comparisons are attempted.

The progress of part time work, which seems to affect the service sector more than manufacturing, is a second characteristic to emerge from the five national studies. (It should be noted that we do not differentiate, in this report, between part-time work, temporary work and other forms of "incomplete" working hours, which will be the subject of a specific study.) This trend may be facilitated by the externalisation process whereby some of the activities previously performed by manufacturing firms tend to be contracted out to companies usually classified in the service sector. It is not in our remit to discuss employment losses in industry and the eventually related increases nor the interrelated development of manufacturing and services, so it is enough to note that an important issue to be studied further is the blurring of traditional borders between sectors and also within the service sector itself.

Interesting information has been obtained concerning the regional distribution of services and its impact on employment. Business services, for

example, tend to be concentrated in larger cities and may contribute to more centralisation. An equally important question is raised concerning the role of smaller firms and establishments in relation to employment growth. Service sector firms are relatively small according to our research material.

The restructuring of the economy, its changing employment and skill patterns have significant implications for education and training. We will enlarge later on the issues concerning the upgrading of skills (levels), the adjustment to constantly changing technical requirements, and the need for new attitudes and behaviours. In terms of education and training, these imply likely changes in the distribution of roles between educational institutions and the firms acting as a training agency.

On the other hand, however, one may question whether these more abstract requirements can indeed be fulfilled by in-company training. In addition to this, for example, the development of new forms of labour market segmentation may imply a looser relationship between the firm and (part of) its personnel and, as a consequence, a reduced willingness on the side of the firm to substantial financial investments for training.

Though the reports do not present clear-cut indications where a balance will be reached, it is evident that the public sector and the companies, one way or the other, have to shape the burden of education to achieve the proper balance between a more comprehensive education preparing for adaptability and some kind of professional work experience. An informal consensus was reached in this respect between the social partners during a meeting of experts from BIAC and TUAC (6). Companies need to invest more in the generalisation of competences of their employees while at the same time bearing the risk of not recovering their investments. In any case, all reports agree that, for most forms, the new requirements imply a considerably higher level of financial cost, time and intellectual input devoted to training.

In the report of the international team on the finance sector, it is emphasized that training has to become an integrated part of the firm's overall strategy (3). It should be closely related to product conception, organisational change and to the introduction of new technologies, which it should precede rather than follow. The comparative approach of this study showed rather sharp inter-country and inter-firm differences in the structure of initial vocational training and in the conception of the skill formation process.

The nature of services and the way in which they are produced are profoundly affected by the combination of intensified competition, a wider use of constantly expanding information technologies and of the whole process of restructuring of firms and organisations with which they are correlated. The competition between firms is intensified by an increased internationalisation and rationalisation which give priority to product development, marketing and sales functions.

The new generation of information technologies offers new opportunities not only for increased productivity but also for new and more diversified products and for improving the quality of services -- a shift actually from customer to client relations. These evolutions require far-reaching organisational changes, affecting particularly the degree of centralisation

and the division of labour in especially large administrative service organisations. Here, however, great differences are found according to socio-cultural contexts and the characteristics of the labour force concerned.

For the purposes of our study, it is important to note that all national reports conclude that there is a general trend towards upskilling because of a sharp decline in simple and repetitive tasks, a qualitative upskilling of job content for many intermediate tasks and a rapid growth of high-level professional jobs. We indicated earlier that statistical analysis in an international setting is difficult in this case because of the inadequacy of data and, therefore, the lack of comparability of occupational classifications. Nonetheless, all reports converge in observing a decline of low-skilled jobs mostly in the administrative services, such as clerical assistants, typists and data punching personnel, and a parallel growth of higher level occupations.

In brief, we may conclude from the report that, from the point of view of skill formation, the following new requirements are becoming important:

-- more emphasis on social skills;

-- increased ability to plan one's work and to adapt to new circumstances;

-- increased ability to interact in a more complex interpersonal space and think more comprehensively, requiring a better understanding of the economic, organisational and social context within and outside the firm;

-- extension of group work and interface functions requiring an ability to understand and discuss a variety of human points of view and problems.

"Polyvalence" for most intermediate service jobs seems to be one of the key words in the new skill requirements. In contrast to this, there is a higher degree of specialisation required of professionals in fields such as computer science, finance and medicine, which is built on a broad-based higher education.

Such far reaching changes necessarily have important implications for career patterns and labour management policies, for the structure of the labour force and for skill formation. Traditional career patterns are disrupted and chances for internal promotion appear to be more limited as a consequence of the up-skilling trend, the age structure, externalisation, hiring from the external labour market, etc.

In several reports, a changing relationship between internal and external markets has been observed as well as the emergence of new forms of market segmentation. The latter follows notably from the case studies in the financial sector where three segments are recognised:

-- the first around a core of stable intermediate workers and managers;

-- secondly, there would be a development towards less stable employment conditions for less skilled employees and;

-- thirdly, a rise of the contingent worker designed to meet the firm's need for more flexibility.

The external labour market develops itself as a result of this increased need for flexibility by firms. Sub-contracting to outside firms, interim work and part-time work are similar policies in almost all countries with, of course, situations differing from country to country and individual firms.

The educational attainment of the labour force is rising in all countries and is higher in the service sector as a whole than in manufacturing. Educational attainment seems to be closely related to whether an employee will be "either a winner or a loser" as a result of the trends in the labour market. From the reports, it is clear that, in general, the winners are the highly educated workers (especially the younger ones) whilst losers appear to be those less educated.

In quantitative terms, all reports show a substantial growth of female employment. From the qualitative point of view, however, it is stressed that jobs most vulnerable to processes of change are held by women, especially by those with a low educational level. Therefore, no clear-cut answers can be given in this respect and, moreover, the position of women in the labour market is particularly subject to socio-cultural traditions. This raises a problem for the future prospects of women, considering that the proportion of female workers is particularly high in the service sector.

Chapter II

AN OVERALL VIEW OF EMPLOYMENT TRENDS IN THE SERVICE SECTOR

From the great amount of data presented in the national reports, it is clear that the service sector is:

a) the main employment sector;

b) the main contributor to job growth.

In the five countries studied, the service sector's share in the employment of the active population varies between 51.8 per cent (Germany) and 68 per cent (the United States) (1982). These data are even more impressive if they are compared to the employment trends in the primary and secondary sectors of economic activity. Although the definition of different categories of the service sector may vary, Table 1 clearly shows the lead this sector has taken in the five countries.

Table 1

SERVICES' SHARE OF TOTAL CIVILIAN EMPLOYMENT
(Percentages)

	1970	1982	1985
United States	61.1	68.0	
Japan	46.9	55.4	57.5
France	46.4	57.2	60.6 (1984)
Germany	42.9	51.8	55.1
Sweden	53.5	64.1	65.0
All OECD countries	49.2	57.7	

Source: OECD Employment Outlook, Paris, 1984, Table 19, p. 40. Reference is also made to OECD Employment Outlook 1986, pp. 144-145, and Claude Fontaine, "L'Expansion des Services: un quart de siècle en France et dans le monde développé", Teleco, 141, Bd. Haussmann, 75008 Paris, Octobre 1986, pp. 18, 19, 132 and 189.

In the Japanese report it is noted that the changes in the service sector (i.e. the increase) should not be associated with recent change but that, more than anything, attention should be paid to the trend that in the last ten years an increase in jobs in secondary industry stagnated. In the French report this stagnation is also mentioned, but at the same time the "autonomous" growth of the tertiary sector is recognised. It should be noted, however, that the enormous expansion of the 1970s in general decreased after the early 1980s.

If we compare the different sectors of the five OECD economies insofar as job growth is concerned and in the light of the preceding paragraph, the data are no less impressive. Table 2 identifies the contribution of the economy to job growth. In the United States, for example, the service sector contributed 95 per cent of the 27.2 million jobs added to the economy in the period 1970-1984. Whereas employment in the goods sector (since 1953) fell by 8 per cent and employment in the services rose by 46 per cent (7).

Within the last ten years in Japan, the figure was 60 per cent for the service sector's share in the 5 200 000 people newly employed. The increase in the service sector in Sweden in almost the same period (1970-1984) as for the United States amounted to 31 per cent, the total employment growth being "only" 8 per cent. The same trend is discernible for the distribution of the French active population.

There are striking differences between the respective service sectors. In Table 3 we present, by example, the growth of employment between 1976 and 1982 for all services and for financial and business services.

If further detailed, the data are even more contrasting. Though difficult to compare, the French, Japanese, and Swedish reports give us an idea of the relative strength of the various service branches. For France, for example, we note that in the period 1980-1984 the transport sector had an annual employment increase of 0.33 per cent (in Sweden the increase in the same sector over the whole of the period 1970-1983 amounted to 12 per cent), whereas "Post and Telecommunications" over the period 1980-1984 saw a yearly employment increase of 1.66 per cent (Sweden, 1970-1983, 23 per cent) and the insurance sector scored 2.40 per cent. The Japanese data cover the decade 1975-1985: over that period we find that "information services, research and advertising" had an employment growth of 133.8 per cent, in contrast to the total of services (35.8 per cent).

Table 2

CIVILIAN EMPLOYMENT BY SECTOR: AVERAGE ANNUAL GROWTH RATES IN PERCENTAGES

	1975 - 1979			1980 - 1982			1983			1984			1985		
	A	I	S	A	I	S	A	I	S	A	I	S	A	I	S
United States	0.0	4.1	3.5	0.6	-3.5	1.7	-0.8	0.0	2.0	-2.0	5.8	3.8	-3.8	0.5	3.0
Japan	1.9	0.5	2.4	-2.5	0.2	2.0	-3.1	1.4	2.7	-3.6	0.8	1.2	-0.6	0.8	0.8
France	-3.0	-1.1	2.3	-3.2	-2.1	1.4	-2.3	-2.6	1.1	-2.2	-3.3	0.5	-2.8	-2.8	1.4
Germany	-4.4	-0.4	1.4	-1.5	-2.9	0.3	-0.3	-3.4	-0.1	-0.1	-0.9	1.0	0.0	-0.1	1.4
Sweden	-1.9	-2.1	2.7	-0.2	-3.2	1.4	-3.0	-1.1	0.9	-4.8	0.4	1.4	-4.6	1.3	1.3
Total All OECD countries	-1.4	0.9	2.6	-1.7	-2.5	1.5	-0.9	-1.3	1.7	-1.9	0.9	2.5	Not Available		

A = Agriculture

I = Industry

S = Services

Source: OECD Employment Outlook 1986, Table B, p. 137; see also Fontaine, op. cit.

Table 3

GROWTH OF EMPLOYMENT IN SERVICES, 1976-1982
(Average annual rate in percentages)

	All services	Financial and business services (ISIC 8)
United States	2.7	5.6
Japan	2.2	12.4
France	1.6	2.5
Germany	1.5	3.5
Sweden	2.1	3.0
All OECD countries	2.1	5.1

Source: OECD Employment Outlook, Paris 1984, Table 22.

The total employment contribution of the service sector in Germany increased from over 41 per cent in 1960 to 55 per cent in 1985. From 1975 to 1985 there is a slight absolute reduction in the number of the active population, a reduction which is found in all sectors of the economy except the services.

It is interesting to note that a great part -- if not the greater part -- of employment in the service sector is in middle and small-sized companies. In Sweden, for instance, the branch of commercial data processing centres, data service bureaux and computer consultants consists of 1 700 companies employing 12 000 people. In Japan, the number of enterprises in the information services was 2 549, with a distribution of employees as follows:

Size of company	Contribution to employment (%)
fewer than 5	10.6
5-10	14.1
10-30	28.9
30-50	14.7
over 50	31.7

The French report also presents some detailed data in this respect on the information service sector:

Number of employed	6-19	20-100	100-200	200-500	over 500
Number of enterprises (in %)	42.9	50.9	3.4	1.5	1.3

In Germany, also, most of the somewhat less than 3 000 counselling and software companies each employ fewer than 100 persons and, for the software bureaux, even predominantly fewer than 10.

Unfortunately, we do not have detailed data from the reports on other branches with regard to company size. We will return to this issue in the final chapter.

Chapter III

EDUCATION, TRAINING AND SKILL FORMATION

It will not come as a surprise that all the reports reach the conclusion that in order to meet the requirements of the new service economies, in particular, a structural change in the education systems in OECD Member countries is necessary. In doing so, however, the emphasis is not so much on a change in the curriculum, since it will be very difficult to give a detailed curriculum for meeting the requirements of the economy, but rather on the preparation of the individual for further learning and training. As the United States report defines it, the service economy must be erected on a culture of adult development and "life-long learning" (8).

The required changes certainly should not be confined to what we would call the traditional education system. The changes do have an impact on the whole structure of education and training institutions, whether in the formal education system or the informal. The main challenge lies on the one hand in relation to the capacity to raise the educational level of young people entering the labour force and, on the other hand, to avoid early elimination of those whose basic level is insufficient. Also, new attitudes should be promoted such as creativeness, adaptability, capacity to adjust to a changing environment. The central question in this respect is the balance to be constructed between the internal system (i.e. the in-school system providing basic knowledge and a preparedness and interest for further training) and the external system (i.e. the out-of-school system providing the specific skills for the occupational role). This new equilibrium will, of course, be defined not only in terms of curriculum, but also of resources. In other words, will companies take a greater responsibility for the development and training of their personnel by increased in-company training, and how much of the necessary training will be provided by other sources?

The French and Japanese Education Ministries have already developed plans to offer training in information technology at all educational levels -- not only with the objective of providing people with basic computer knowledge and the ability to use computers, but also providing for highly-qualified senior information processing engineers, training of researchers and instructors, and offering of re-education and continuous education.

Actually, only in the preliminary report of the international co-ordinating team do we find a detailed account of the educational implications for both the various groups on the labour market and the educational system insofar as the financial sector is concerned. Interesting

information is also presented in the French, German and Japanese reports with reference to the information services in particular.

It is not feasible to deal with this information in detail within the framework of this synthesis. It it sufficient to mention here that in the German report those involved in software companies report on the requirements they deem fit for qualifications in this sector (9); a somewhat similar exercise has been executed for the Japanese data processing industry. In particular, this information relates to the various vocational groups in out-of-school rather than in-school education (10). All groups emphasize the need to enrich education for skilled engineers (through systematic training by the company itself) and much less so for initial training.

Important efforts in the field of training and skill formation have already been undertaken by the economic sector. The upskilling of qualifications in all jobs of a tertiary character and the changing qualification profiles have led to relative shortages in the labour market as the demand for precise qualifications has (still?) only partially been met by the traditional educational system. It is no wonder therefore that interesting data were found in the reports regarding the investments companies make in training their personnel; these vary from 3 per cent of the total wage costs (in the finance sector in France) to 6.5 per cent for information service companies (also in France). The other reports do not specify the financial implications of this policy, but they also seem to be considerable. Some information in this respect is presented in the reports on Phase II of this project (11).

This financial investment is all the more impressive if one realises that the service sector already employs proportionally more highly-qualified persons than the rest of the economy. In France, for example, we find that persons with a diploma equivalent to or higher than upper secondary education constitute 40 per cent of the employees in the non-mercantile services, this proportion being 30 per cent in commerce and retail and only 20 per cent in the totality of the actively employed. For Japan we note that over 60 per cent of the software engineers have completed university or post-graduate school and 20 per cent are high-school graduates. It is interesting to note that these are not necessarily the maths superstars: of those with a university background, 30 per cent of the software engineers graduated from a science and engineering department; 10 per cent studied mathematics and information processing, and a little over 20 per cent graduated in social science and/or philology-related subjects. A detailed account is presented in Table I-4, Part 3, of the Japanese report and deserves closer study.

The German report indicates that recruitment in the software branch is not an exclusive domain of those having studied information technology and mathematics: economists and philologists (with some retraining) are being recruited as well. Non-specialised (i.e. person-related) characteristics are more important during the hiring process in addition to the individual's specialised proficiency. Training programmes for new recruits are generally provided. Scientific employees are required to have at least some form of post-secondary education (Hochschulstudium).

The German report also specifies that not only practising "classical" professions such as engineer, chemist, physicist, but also much less

mathematically oriented jobs, nowadays require some basic knowledge of information technology; a recent survey (12) assessed that 38 per cent of all professions had, in one way or another, something to do with information technology. And another survey estimated this figure at 66 per cent for the year 2000.

It might be interesting to give more details as to the ways in which the service (sub)sectors studied have provided for the skill formation of their personnel. There is a strong tradition in the banking sector for internal training. Almost at all levels and for all relevant banking subjects, it is the companies themselves that organise the skill formation for their staff, either through initial training on a part-time basis during work hours or further training (including some classroom teaching) which may be offered by external institutions. Therefore, one might reach the conclusion that, at least up to the middle level, the banking sector on the whole relies strongly on internal recruitment and its own skill formation and trainee programmes, whereas there is a tendency to rely upon external training courses for top-level management. This may be facilitated by the fact that recruitment is already on a high level in Germany: for instance, 75 per cent of the total staff have completed vocational training or have a university degree; 7 per cent of this group have a college or university degree.

In this respect, the German, French and Japanese reports seem to be congruent with each other. The reports emphasize the continuity of the internal labour market and expect that it will continue. It should be mentioned, however, that there are quite a few exceptions to this understanding, in particular in the upper tiers recourse is often made to the external labour market, but apart from the recruitment of some high-level specialists, the banking sector in these countries seems to rely upon internal recruitment and its own skill formation and trainee programmes. New labour management relations will nonetheless appear in the banking community, whether based on the traditional Japanese form of lifetime employment or assured by the professional organisations as in France, and in general subjected to the tradition of employment stability in this sector.

It is not very clear, however (the reports not being very consistent in this respect), whether this stable state can be maintained. The reports themselves mention, for example, that a considerable lack of qualification creates a hindrance to quick realisation of new business strategies in spite of the massive structural change during the past decade in favour of qualified bank employees (Germany). In the French report, it is explicitly mentioned that for all posts new training needs are evident. It will be insufficient to recruit some highly-qualified persons; what is needed is a reorientation of the whole staff. The Japanese report refers to a survey and analysis by a private survey agency (13) in which it is stated that today banks are called upon to develop software...and software on monetary merchandise. The moves and in-house changes that have been specified result from the attempts to meet these needs, and it is expected that these needs will become greater. Indeed, there is no prospect for stability.

In the business service sector, and, in particular, in the information technology sector, there is a rapidly increasing demand for highly-qualified staff, such as, for example, software engineers. The existing shortages oblige companies to train their specialised staff themselves. In view of the

rapid developments in new technologies and in order to meet the changing needs of the client, this training effort has to be on a more or less permanent basis.

Part-time young working women seem to be an important part of this sector although it is not clear whether they represent the same highly-qualified persons. This is indeed doubtful in the light of what will be reflected in Chapter IV, "Impacts on Labour Force". Upon entering their jobs in the information business, these highly-qualified persons are generalists, however, whose needed expertise and skill will either be obtained by on-the-job training, job rotation, by learning from the customers' demands and knowledge, or by the temporary support of experts from outside institutions.

The Japanese report specifies that the basic recruitment policy of computer and software companies is to recruit their personnel directly out of school and train them within the company. Increasingly, this policy is also practised by the small and medium-sized (software-producing) companies. The same pattern is to be found in France, Germany and Sweden, where the new recruits will all follow training programmes which are, for the greater part, organised in-house. User firms most often have access to producer-organised training courses, notably as part of "after-sales service".

Whereas the initial training for the professions in the health sector is sometimes rigidly organised with detailed selection criteria, the further training for these professions is only on the verge of crystallising, as is the review of the curriculum. This is especially the case for acquiring new knowledge and skills in relation to the various kinds of new technologies. The majority of physicians and other medical staff have to acquire this new knowledge after they start their jobs. Although sometimes a seminar is organised by the producer of new machinery and sometimes physicians return for a short period to a large university hospital to acquire the new knowledge, the skills are mainly acquired through an informal circuit of consulting with each other, on-the-job training, or even from abroad. And, in many cases, this is done voluntarily. Here also the increasing level of initial training facilitates this rather informal further training: in the period 1975-1982, the proportion of nurses with at least an upper secondary education diploma rose from 14 to 32 per cent, for the other professions in this sector it rose from 32 to 44 per cent (14).

As in other service sectors, we can also note here a tendency towards higher qualification, although a substantial fragment of the workforce (cleaners, etc.) continues to be low-or non-skilled.

In Chapter V, "Interim Work", we refer to the hesitant attempts at training by temporary work companies. The case study that was undertaken in the United States points out that the temporary workers of these firms were enabled to upgrade their computer-based office skills or learn new ones, in order, among other things, to respond better to their clients' evolving needs. In France a special fund has been established (le Fonds d'assurance-formation travail temporaire) which offers training programmes.

Finally, attention is drawn to the fact that the informal training system has an important share in skill formation. It explores a vast array of methods to pass on work knowledge. In addition to what individuals acquire

through job rotation within the firm and external, horizontal and vertical mobility, we may find internal and external training courses, OJT, apprenticeship, lectures, voluntary learning, different kinds of sabbaticals, specific programmes for ability development, training offered by producers, and more besides.

Chapter IV

THE LABOUR MARKET

An interesting account is presented in the German report of the developments in the labour market since the early 1960s. Although reference is explicitly made to the financial sector, some characteristics apply to other branches of the service sector as well. It is ascertained that the strong economic expansion in the 1960s gave way to an uplevelling of the existing remuneration structure (either politically enforced or on a voluntary basis by the employers) so as to guarantee recruitment in general and to retain higher-qualified employees. At the same time, there was a need for higher-qualified personnel as a result of the increase in the workload and its complexity.

As for the 1970s and 1980s, in particular as from the mid-1970s, we note a growing labour market (on the supply side) because of the economic recession and the increasing number of school-leavers and, at the same time, there is the development in the field of information technologies.

As in all generalisations, the assumption cannot be made that this is valid for the whole service sector. It should be clearly understood that there is no such thing as an average service worker or the service sector, but that there are different tiers in the firms which are reflected in a segmentation of the labour market and that the description presented only applies to some of them. This segmentation of the labour market -- although only explicitly mentioned in the French report -- is at three levels and is particularly clear in the financial and information technology sectors. We notice here a first level of stable jobs in which technical specialisation is less favoured than a certain degree of multi-skilling. This layer seems to correspond more or less to the "average" worker referred to in Chapter V. We will find the second segment dominated by the external labour market in which there are posts for the very highly qualified.

The third level is reserved for the less qualified posts. In the service sector, in particular, these seem to be very vulnerable to technological innovation and thus, in this case, are in danger of becoming obsolete. The number of employees performing less qualified routine work has already declined and/or is increasingly externalised. In general, the growth of the service sector and the growth of the service-component of manufacturing leads to an increased demand for educated workers.

There are a number of similarities in policies which are pursued by service firms in order to achieve more flexibility. Sub-contracting to outside firms is, for example, a common practice in software development and is one of these policies. Interim work (i.e., employment by specialised firms putting workers at the disposal of user companies for short periods of time) is another one, so is part-time work.

MOBILITY

In terms of mobility patterns and careers, many similar trends are perceptible. Nonetheless, one has to be careful when interpreting them, as some of the sectors studied have long traditions in this sense, particularly in the banking and medical sectors, professional ethics and employment traditions have a strong impact on these issues. In most countries there exists for these sectors fairly detailed social security legislation which also functions as an intervening variable between the labour market and, in particular, technological changes.

Worker mobility is higher in some countries (e.g. the United States) than in others (e.g. France) and in large cities. In combination with the age structure it determines the level of turnover and the capacity of the firm to adjust to changing requirements.

We might conclude that the tertiary sector as such (leaving aside the public and semi-public service) is much more mobile than the economy as a whole, the mobility in the financial sector being understood as for the greater part confined to the internal labour market. It is clear from the reports that many service sector branches are considered by many young people as a passing-through sector, a first step in active life. In this respect the French report presents some interesting data: in the service sector those having a seniority of less than one year comprise 20 per cent, versus 13 per cent for the economy as a whole, and those having a seniority of ten or more years are, respectively, 26.5 and 41 per cent (15). This mobility may partly be explained by the strong job growth in the service sector. Indeed if we compare the different branches in the service sector, we note a positive correlation between yearly employment growth and mobility. In France, for example, the branch of automobile repair and sales combines a decrease in employment (1980-1984) with a high seniority (28.3 per cent of more than ten years).

It should be made clear that, for an important part, this mobility finds its place within the business service sector. Here we find a very strong mobility in a differentiated labour market, a differentiation both in terms of the organisation of the production process and in terms of education and training. Business services are apparently used as a springboard to other sectors. Again, from the French report we learn that (in 1981) 26.8 per cent of those newly employed had the business service sector itself as their employment of origin, 37 per cent came from other sectors and 11.7 per cent were school-leavers (16). This sector functions as a kind of catalyst for (further) developing already acquired skills and knowledge and for the acquisition of new competences. For the business service enterprises this,

however, has a number of disadvantages as such a strong mobility means a transfer of know-how.

Of course, situations differ according to countries, industries and individual firms. In the software industry, for instance, where mobility is usually high and where firms have relied heavily on the external labour market, French case studies have identified firms where the trend is towards more stability and more reliance on the internal labour market.

In the banking sector the official philosophy is that part of the automation there is only meant to provide an additional service to the customer and thus does not aim at employment reduction. And, indeed, we learn from the reports that employment in this sector is very stable. This does not exclude mobility, but the main characteristic here is that mobility for the greater part confines itself to an internal labour market; it is expected that the growing deregulation in the financial service sector and the tendency towards integrated advisory offers will accelerate mobility in this market segment. In this respect, the German report mentions that insurance companies are increasingly recruiting bank clerks in order to employ them in the sector of capital investment.

CAREER PATTERNS

As for the stability of employment in the financial sector, the French report specifies that the rate of turnover is low. The German report is more detailed in its description of mobility and career opportunities in this sector. Here we see a stagnation and limitation of career opportunities which should not necessarily be attributed to the decline in employment growth, at least not for some tiers. Sufficient opportunities still exist, particularly for the better qualified. The conventional form of employment in Japan in which employees are promoted from one echelon to another is in general expected to remain intact for the banking sector as well, although gradual changes may occur in labour management relations (we will return to this later).

The rapid progress of information technologies in other service sectors also means a great expansion of the employment possibilities for software engineers. The shortages that existed and still exist here lead to strong mobility, although for the software industries as a whole a rather stable internal labour market is establishing itself through upgrading of functions and training of personnel.

The Japanese report presents some interesting data on this phenomenon and its career prospects. A typical career path of the software engineer is the vertical course: from programmer --- system engineer --- project leader --- to manager. This path is perfectly reflected by the demographic patterns in the profession: 90 per cent of the programmers are in their 20s, 70 per cent of system engineers are between 25-35, 80 per cent of project leaders are in their 30s and only half of the managers are under 40 years of age. The statistically average software engineer is 30 years old, with 7.5 years of

work experience in the information processing job, of which 7.4 (!) is for the current company.

The relative shortages of computer-related jobs and of skilled workers in general (on the demand side) are expected to continue. Especially for the Japanese wage and seniority system, this parallel specialist system is a challenge and even a threat which companies try to answer by maintaining two career paths. The expected continued increase in demand for these kinds of specialists may check the labour-saving effect as a result of simplification and automation of programming (in Japan between 1975 and 1985 the increase was almost 400 per cent in the group programmer/system engineer/analyst, and for operators in the same period a factor of 8 1/2). In order to secure manpower resources, companies have to rely upon in-house training of new graduates and make active use of job rotation within the company. Personnel policy is of great importance in this respect, either for exploring the relatively open labour market or in developing training programmes (the latter being emphasized in the Japanese situation as mid-career recruiting is rarely done).

In spite of the traditions and the existing legislation, the finance sector was confronted with the necessity to respond to the changing circumstances caused by the processes we will mention in Chapter V (see "Banking Sector"). For some specialised skills, the external labour market had to be explored, but predominantly in-company further training for older employees met the requirements. In the Japanese report it is expected, however, that even in the banking community (which is a typical example of labour-management relations based on the traditional form of lifetime employment) new labour management relations will evolve as a result of increasing software development.

IMPACTS ON LABOUR FORCE

From the reports it is almost impossible to identify which groups of the workforce are particularly affected by the developments in the service sector. Apart from labour market prospects being more favourable for the better qualified, especially the young multi-skilled worker who proved a capacity to adjust to hard competition, a changing environment and international careers, we are left with some open questions. Although we were confronted with impressive data on female employment growth, we should at the same time take into account the remark in the German report that qualified female employees are less privileged with regard to institutionalised further education (17); we should also note that in the Swedish report it is mentioned that poorly educated women are often the hardest hit when new technology is introduced.

Nonetheless, from the quantitative point of of view, the data we have are impressive:

-- For France in 1975 women held 51 per cent of jobs in commercial services; in 1982 this percentage was 54 per cent;

-- For Sweden we note that from 1965 to 1980 the share of jobs held by women for the economy as a whole increased from 34 to 43 per cent for the service sector this was, respectively 51 and 59 per cent;

-- The wholesale and retail trade in Japan -- after a decline between 1965 and 1975 -- showed a growing percentage of female employees from 61.8 per cent in 1975 versus 63.6 per cent in 1980 to 65.1 per cent in 1985, this being due notably to the strong increase in this sector of part-time workers (being predominantly female in Japan).

-- We have very detailed data on the position in Germany. The percentage of women in the economy in general rose very slowly between 1961 and 1985, with a decrease -- as elsewhere -- for primary and secondary industry, but with a strong increase in some service sectors (an almost 100 per cent increase in the financial sector and 70 per cent in business services). The rate of women in private banking is above 50 per cent, although it should be noted that the share of women in the total workforce of the banking trade has been declining since the mid 1970s.

This growth in the relative share of women in employment has to be attributed to an important extent to specific sectors which are more strongly feminised than others.

This is particularly the case in the health care sector and for temporary work services. As far as the health sector is concerned, the French report points out that two out of three jobs created between 1962 and 1982 in the health sector accrued to women (18). The Swedish report shows that 85 per cent of the employees in this sector are female (19). The temporary work sector also is experiencing a strong influx of women (see Chapter V, "Interim Work"). For the United States, the report says that 64 per cent of temporary help workers are female (20); in this connection it is interesting to note that in the past, temporary industrial jobs were almost all held by men, but nowadays the light industrial positions are increasingly held by women. Conversely, women filled predominantly temporary clerical jobs and now industry estimates that 30-40 per cent of these jobs are held by men. The French data for temporary work are presented thus:

	Men	Women
1975	72	28
1986	60	40

(Note: See also OECD Employment Outlook 1986, Table 4, p. 18.)

The German report states that in the financial sector, since 1980, the share of part-time working women has been increasing proportionally faster than the increase of employment altogether. Temporary work is almost exclusively a female phenomenon. In private banks in Germany women have a share of 98 per cent (1986) of temporary work in comparison to the 51 per cent (1986) for all women employed in this sector.

In the Japanese banking sector the number of female workers in particular has been on the downswing since 1978, which is also the case in Germany for this sector. Against the 51 per cent just quoted for all women employed here in 1986, in 1975 this figure was still 53 per cent. With the extension of female service workers and, at the same time, the reduction of their overtime work, new employment of female workers has decreased even further.

In contrast to this, interesting developments still seem to be taking place in Japan. There were not many career prospects for female workers because, as a rule, they only worked for short periods of time and therefore had little opportunity to enhance their qualifications. The attitude of female workers is now changing and those who wish to work for a longer period are increasing in number. It can be observed that in some industries (the Japanese report mentions distribution) an increasing number of firms are preparing career systems for female workers.

It is also emphasized in the Japanese report that the increase of the female labour supply in the employment market is significantly absorbed by the interim service firms (21). Many clerical and related workers dispatched by the temporary service firms are female (22).

Positions most vulnerable to technological innovation (e.g. working with registration, card punching, and the like) are, for the most part, held by women -- 30 per cent of Swedish women, compared to fewer than 5 per cent for men. As these jobs will increasingly disappear (the German report, for example, refers to a decrease between 1980-1985 from 24.1 to 21.3 per cent for clerks and lower qualified administrative staff) they will be replaced by people with completely different competence profiles. In this respect the German report presents interesting data on employment trends in selected occupations. It may be that there is a rise of female employment, but at the same time their career opportunities are decreasing. In spite of what we have seen before, e.g. with regard to the feminisation of the health care sector, this feminisation for the greater part is confined to nurses and much less so to other segments in this sector.

If we consider the service sector only, the "losers" appear to be the less educated workers and, here also, the younger ones in this category who find it increasingly difficult to acquire an initial work experience. In the German report the elderly employees, with narrow experience in activities threatened by new technologies or organisational restructuring, form a very vulnerable group, particularly when they have no opportunities for further training.

These changes are apparently as yet very tentative when one relates them to figures for the rise in number of female software engineers. Between 1980 and 1985 the number of female information processing workers increased 1.6 times (although in the same period the number of males in these jobs doubled!). More than 80 per cent of all software engineers are male. Fewer than 40 per cent of programmers are female, whereas only 6 per cent of the system engineers and 1 per cent of project leaders are female. It seems, however, that this sector is again increasingly calling for women who have once been on the payroll as a means of using and maintaining the ability of skilled workers. Whether this will actually improve the position of women in

this segment of the labour market is not clear, as the Japanese report at the same time expects that the rate of male personnel might rise because there is a need to accumulate experience.

Some companies, particularly in the information service industry, are now recruiting more female engineers. Their first criterion is aptitude and initiative. The employer's recruitment range has expanded increasingly to include female college graduates as well. In Japan, there are promising changes taking place in this industry, especially when placed in the proper time perspective and not viewed as a single "snapshot" (as in the preceding paragraph). From 1980 to 1984 the number of male software engineers increased by a factor of 2; for programmers this was slightly under 2. For females, these numbers were, respectively, over and almost 4; in 1980 the total proportion of female software engineers and programmers was 7 per cent; by 1984 it had almost doubled. In Germany the proportion of women as skilled workers in the information service industry increased from 13.3 per cent (1979) to 16.6 per cent (1985).

Chapter V

CHANGING SKILL PROFILES

Adler (23), in his paper "Skill Formation in U.S. Accounting Firms: Pressures, Trends and Options", identifies four major types of pressures operating on skill formation. Firstly, he mentions "market forces", e.g. the legal requirement in the United States for all public corporations to submit to annual audits, whether the auditing is done by the traditional accounting firms or is performed internally.

"Technological change" is the second force with an impact on skill formation dynamics. Further "changes in strategic orientation" of firms play an important role in new challenges to skill formation, as is the case for Adler's fourth and last pressure, "organisational structure" (24).

As far as technology is concerned, it is noted that there is a relentless computerisation of business and industry. For accounting, technology is an increasingly important tool, but new technologies are also very instrumental in other sectors of the services. The impact of technology is also felt in the growing need for certain technology specialists and in the capabilities of associated support staff as well.

On several occasions (2), we have said that "the spectacular spread of new technology ... has so monopolised attention that one is tempted to see it as the determining factor in work, employment and vocational training. It should be remembered, however, that technological progress is only one of a wider set of changes ... technology is a potential force that can serve a variety of projects...". Although one should, of course, be very careful not to stick to mono-causalities, it is clear from the reports on the service sector that while technology may not be the only factor, it is certainly one of the important determining factors in the service sector as far as job content, employment structures and skill formation are concerned.

BANKING SECTOR

We have already mentioned the report of the international co-ordinating team and can therefore be very brief on this issue. We do not claim to present any new insights, but for a complete survey of this phase of the human

resources study, some remarks should be included. In reading these, it should be taken into account that the international team studied the financial sector as such in the five countries. The findings presented in this section are based on detailed accounts of the banking sector only in Japan and Germany; for Sweden the financial sector was not covered in the national report, whilst the U.S. report presented a single case study in this area. The French report dealt with a global survey of the financial sector.

Although not all reports are as specific on this as the Japanese one, it is understood that the developments in the banking sector, or rather the final informatisation, were on the one hand caused by, and on the other hand facilitated and necessitated by processes of internationalisation, deregulation and, of course, technological innovation. Starting with the mechanisation of work, a process which did not take place in the same period in all countries studied, the banking sector only recently arrived (via the adoption of computers in off-line processing and increasingly sophisticated on-line systems) at the realisation of electronic banking with the use of micro-electronics.

Although there are minor differences, particularly as concerns time lapse, the trends in the countries reporting are striking, both with regard to the place and structure of this sector as well as to (changes in) skill profiles within it. The growth in this sector found its origin in deregulation on the one hand and concentration on the other. Internationalisation both causes, and results from, these common denominators. These developments were also facilitated and amplified by technological changes also at the consumer level, for example, in France via the facilities offered by Minitel for home banking.

Further macro-economic changes have increased capital spending and have led to a multitude of new products and services. In spite of an impressive growth in services and turnover, the increase of employment in this sector has been rather inconsistent. A strong increase was found in the early 1970s (some 5-7 per cent yearly), but in the last decade the employment growth, coinciding with the introduction of the latest on-line systems, has been much less. For France, the growth in this sector was strong until the mid-1970s and slowed thereafter; at this time the employment situation is more or less stable.

For Germany, between 1960 and 1985, there has been growth in absolute figures, with a strong growth of employment in this sector between 1978 and 1980. Since 1980 there has been a modest growth of about 2 per cent on a yearly basis. The German report has, at the same time, presented interesting information on the insurance sector in that country. Tendencies in this latter sector are not necessarily identical with the ones in the banking sector. The Swedish report presents only an overall figure of 38 per cent for employment growth for "fiscal services" over the whole period 1970-1983. The number of employees in Japanese banks in 1975 amounted to 478 611; in 1982 there were only some 3 000 more, whereas city banks have been strongly on the decrease since 1975 and regional banks on the increase.

The respective stages of computerisation in the banking sector have had repercussions for the various jobs vulnerable to this modernisation, but at the same time counter-trends have appeared. As the introduction of new

technologies led to a decrease, e.g. the number of personnel in charge of behind-the-counter work, bank branches attempted to reinforce their over-the-counter services, which led inter alia to an increase in the number of counter personnel.

In view of the employment growth -- albeit modest -- in this sector, apparently the terminal does not replace the "platform worker", as the United States report calls it; the platform worker was actually created by the automated terminal. The clerks who once filled out loan applications and ordered checks for customers were subjected to a selling skills programme followed by the placement of terminals on every worker's desk. The terminals enable the newly-created platform workers to call up customer files, to correct customer demographic information and the like. In fact, the terminal, as an exponent of office automation and on-line systems, helps the platform worker to serve the client better and sell the bank's "products". Moreover, this is supported by the better integration of data banks and the setting up of product-oriented data banks and advisory programmes.

As explained in the German report, banks are discontinuing former specialisations in order to establish themselves as universal consultants for all financial service products. A differentiation of activities will only be undertaken along the lines of customer advice, services and sales, of market observation, product planning and sales promotion, and the carrying out of payment transactions and administration of contracts and accounts. However, it is expected that there will be little change with regard to client contact. The bank clerk, who is in charge of computer-based advisory and sales tasks, will prevail in the future. What is desired is the equipping of all working places with terminals. The relation between visual display units and branch employees is now 0.8.

It is not only the clerk or platform worker who has been and will continue to be confronted with changes in work environment and skills. The new package of financial services also has its impact at the level of bank management, particularly where the bank managers have had to develop new supervisory skills as well in order to understand the psycho-social determinants of their workers' performance, in addition to the double competences needed at all levels in this sector, i.e. a technical competence (for dealing with the new equipment) and an ability for interpersonal contacts with the customer.

The German report (25) gives a fairly detailed account of the characteristics of the new job profiles, which is worthwhile repeating here. Present expectations of the banking sector employee are:

-- make a strategic analysis and integration of the customer's needs;

-- have a wide knowledge concerning developments in the national and international money markets;

-- have considerable knowledge of developments in specific economic sectors in order to be able to evaluate risks and opportunities for money investment and financing credits;

-- possess abilities to communicate and to verbalise;

-- select data quickly and decode their economic and social content;

-- make quick decisions within a short period of time.

Although this statement is much too global to have an immediate operational application, it clearly indicates the new lines of thought in skill formation for the banking sector. It is also demonstrated that there is a shift from specific to more general and polyvalent skills. The tendency towards upskilling is evident although the characteristics just listed vary depending on the positions of managers, employees and intermediate categories.

INFORMATION SERVICES

It is already evident that this sector of the services is rapidly expanding both in terms of employment and in volume. For example, in France spending on personnel in this sector in the period 1973-1985 grew by a factor of 6 1/2 and on external prestations by 8 1/2. For Japan, we note an increase in sales in the information service industry and information activities in all industries by a factor of 5.6 (1974-1984). In terms of personnel, the figures are also impressive. In 1985 in Japan, there were 493 000 employed information processing workers, an 88 per cent increase in five years, whereas over the same period the increase was only 10 per cent for all employed workers. Growth factors for computer programmers and system engineers arrive at 2 1/2 (1980-1985), the number of key punchers and operators increased more slowly at 13.2 and 46.5 per cent, respectively.

Information processing jobs in Germany -- as in the sector at large -- are still characterised by strong growth. For the higher qualified jobs in this sector, a 29 per cent increase occurred between 1978 and 1985 (the share of women increased) but in the same period a slight decrease (-4.3 per cent) for lower qualified jobs (card punchers, etc.) is reported.

It is to be expected that in the information service industry, which is very heterogeneous and covers the whole range from highly-qualified work to manual labour, the increased rate of sales output and employees will be larger than in any other industry and will continue to expand. MITI predicts that in 1990 the total demand for information processing engineers (26) will be 1 600 000; a shortage of 600 000 exists. Explanations for this strong increase differ from country to country. For Germany, mention is made of the externalisation of software production by the users. It is expected that, in particular, mixed and peripheral professions in conjunction with data processing will show disproportionally high growth rates (computer generalists). In the French report, the topic of externalisation appears but in a slightly different context. Recourse to external services offers more flexibility to the management of internal services. This same tendency is also found in the United States report where the externalisation is an instrument of cost containment. The strong growth of the information service companies in France is rather attributed to the constructors' policy of invoicing hardware and software separately and to the relative weakness of national hardware constructors, which implies that a gap in the software market has to be filled by independent companies not as yet created.

There is no doubt that the development of information services has been and is greatly facilitated by embracing technological innovations and the continuous improvement of software has lowered prices. The growing importance of information services can be characterised by:

-- an increased utilisation of services by industries and administrations (Japan, France);

-- professionalisation (for business services in general - Germany);

-- a growing share of investments in these kinds of activities;

-- a move towards concentration (Japan, Sweden).

Business services have to respond themselves to the informatisation process of most of the functions of companies served and therefore have to specialise either by type of activity or by economic sector. This has already given way to important reorganisations in accordance with clients' needs. This specialisation may also transform job profiles and qualifications. It is questioned whether the increasingly differentiated needs of clients can be responded to by on-the-job training or through the increase in group work.

The German report differentiates between the suppliers of services (in this case software) and the users. On the supply side, it is particularly the specialisation that is important whereas the users tend to be more generalist. Both sides are characterised by a need for social skills and multiskilledness. For the supply side, it is emphasized that inderdisciplinarity, reponsibility and self-control are the characteristics of the future skill profile.

The interpersonal skills in relation to the customer are of major importance, as is the understanding of the company's line of business, both the client's and the employer's. In the Japanese report a differentiation is made as to software engineers, programmers and systems engineers. Whereas the first are required to think logically and should be able to analyse, the latter two need, for one thing, different kinds of knowledge and skills. The French report also differentiates as to jobs. Now, all receive training in techniques of communication, but certainly not in installation of systems or system development.

Since this sector is still evolving rapidly, however, definite conclusions cannot yet be drawn. The introduction of micro-information technology leads to new needs in programme analysis and calls for new crafts. New orientations and business strategies, as well as increased competition, lead to a more profiled relationship with the client in which the information technology professional is increasingly seeking to determine a client's problems in order to find possible solutions.

HEALTH SERVICES

More than any other of the service sectors, public health is a subject of political and public interest. In all the countries studied, it is

reported that health care costs should or will be reduced. This does not exclude a continued growth of this sector: in Sweden, for example, in the period 1970-1983, employment in this sector increased by 83 per cent (as did total employment in the same period by 8 per cent and the service sector as such by 31 per cent), representing one-fourth of employment in the public sector. In France, job growth in this sector amounted to 7.1 per cent until 1975 but fell to 3.5 per cent for the period up to 1983.

Health care is, for the most part, delivered through government health insurance schemes, the demographic structure being of importance as to the level of medical expenditure. We note that most OECD Member countries are confronted with an increase in the number of elderly people. The upward pressure on financial resources resulting from this leads to a search for new health care delivery systems facilitated by new technologies. In general, these technologies allow for an amelioration of the quality of health services and their diversification.

Before looking into these changes in more detail, we should first present some more characteristics of the developments in the different health care systems. Traditionally, the percentage of women in the medical sector has been very high (in Sweden, for example, 85 per cent are female), notably of course for nursing (85.6 per cent female in France in 1982), but feminisation is also in progress for other segments of health care. In France one-third of the medical profession is female (1982) as compared to 29 per cent in 1975. Apparently there is also a trend towards a younger staff.

The Japanese report gives a detailed account of both quantitative and qualitative developments in its health care sector, and although the way health care in the two countries is organised may differ in some respects, these tendencies are confirmed in general by the French report. The Japanese report emphasizes that three factors seem to influence the occupations in this sector. Firstly, there are the changes in the quality of medical care: as the number of elderly people increases, home care will grow (confirmed also by the French and Swedish reports). Another quality aspect is that treatments requiring high technology have increased and will increase even more, necessitating the (re)organisation of the division of labour between clinics and hospitals and among hospitals.

We have already mentioned financial restrictions. In this respect, it is expected that halfway-houses and in-house care may reduce costs. Finally, technological changes themselves are recognised as determining changes in the medical field and affected occupations. Innovations like computer tomography, automatic blood analysis equipment, the management of patients' medical care information, rehabilitation, etc., change jobs and the organisation of work as well as create new jobs. From the quantitative point of view, this implies that for a number of occupations, growth is still to be expected, e.g. for nurses, operators for newly developed machines, new technicians, therapists, medical social workers, cleaners and messengers, and a modest growth for clerical workers. These tendencies are certainly not contradicted by the French report, in which a relatively rapid growth in jobs is predicted for the para-medical sector (in which some occupations have only appeared recently), and the general services in health care.

It is not clear from the reports whether the Japanese trend towards a decrease of medical practitioners and an increase of hospital doctors is to be found in other countries as well. Confirmation of this may be deduced from the movement in French health care towards a greater proportion of salaried employees, while the increased proportion of females in the medical profession are employed in hospitals rather than independent medical practices.

Another trend which seems to be confirmed by developments in the other countries is the co-operation of several physicians with different specialities in the treatment of a single patient. We have already seen this team-oriented group work in other service sectors: for the medical sector in particular this new scope may also offer possibilities for breaking down the thus far insurmountable demarcation lines between the various occupations. In addition to this, the Swedish report mentions the increasing need for flexibility in the organisation and, although the American case study dealt with a particular part of health care (i.e. a pathology lab), here again we see keywords such as "corporate attitude" and "flexibility". It is not clear from the French report whether specialisation here also leads to more teamwork.

In general, then, one may accept the trend towards more differentiation in medical practices, with nurses being the important exception. Although they may be employed in different specialised sectors, it is still easy for them to move from one sector to another; only the very specialised ones, e.g. those in intensive care units, show less mobility potential since the "visiting nurse" is a new phenomenon, little is known about these skills apart from general health care duties. In view of the expected growth in this segment, further research should be done.

As new medical and para-medical techniques become recognised (e.g. physical therapists), the qualifications they require are also becoming officially recognised. In general, it can be said that these newly created occupations require a high level of skill or knowledge. As elsewhere, here too the introduction of computers has at the same time changed and advanced medical clerical work.

INTERIM WORK

Although the business service sector of interim work is increasing strongly, its share in employment as such is still relatively modest. Estimates vary between 5 and 10 per cent of total employment. Further, this sector seems to be more sensitive to the socio-political environment than others. It is therefore difficult to arrive at conclusions in the sense that converging trends for OECD economies can be discerned. In spite of its relative quantitative modesty, the interim work sector plays some important roles. The opportunities this sector offers to those entering the labour market for the first time (school-leavers) or those re-entering it, for instance married women, are of great importance. Also, since employment through temporary work may offer opportunities for more permanent employment, its springboard function is quite evident.

In some of the reports the strong growth of the temporary help industry (in number of contracts, notably) has been directly linked to the economic crisis. As such, this is an insufficient explanation. Recourse to temporary workers is felt to have a cost-reducing effect, particularly for the flexibility it offers to the utilising firm. This flexibility is an advantage as the remuneration of dispatched workers in none of the reporting countries is below that of full-time workers. (Compare, however, in this respect the remarks made in the OECD Employment Outlook 1986, p. 97). In this all the reports that deal with this business service sector are in agreement on the reasons for employing temporary workers. Most of these are self-explanatory and obvious enough, such as providing for peak-load periods, unexpected, one-time projects, absence of a full-time employee, etc. In this sense, enterprises are enabled to continue their production without investing capital on a permanent basis.

Increasingly, however, recourse to the temporary help industry is made for specialised work, rare qualifications and shortages on the labour market. On the one hand, the simplification of processing and control of automated machines increases the potential for part-time workers; on the other, the need for special skills due to the rapid and radical changes in office technology and hence the difficulty in filling certain positions due to a chronic shortage of technologically skilled clerical and technical employees, improves the position of those able to supply the necessary skills.

The temporary service firms and the skills they offer are thus in the process of fundamental change, especially insofar as qualification is concerned. The French report on temporary work mentions that this development has been accompanied by increased effort in the field of training; the profession is enhanced due to its specialisation. It should be recalled in this particular case that the profession as such was subjected to a political debate preceding the elections of 1981 which brought a Labour government into power. This uncertainty decreased the number of enterprises and agencies in the sector but only temporarily diminished the number of contracts. Since 1983, the number of contracts has been rapidly increasing, according to a February 3, 1987 article in the French newspaper Libération.

There are a substantial proportion of women engaged in temporary work. In Japan, for example, one may use as a base the fact that of the total of dispatched workers, 80 per cent are female, 3 out of 4 of them being between 20 and 34 years of age with a relatively good educational background; over 80 per cent completed at least upper secondary school (in the United States, 50 per cent have at least 2 years of college education). In France, the trend towards feminisation is not as strong as in Japan, indeed, the temporary labour force in France is very young and tends to be more skilled than a decade ago, but the majority still male.

It is clear that this segment is of great importance to young people who are entering the labour market for the first time (the French report says that a third of all newcomers to the labour market enter through this channel) as well as for women returning to it. According to the Japanese report, the increase of female workers in the labour market is for the greater part absorbed by the interim service firms. This is not very surprising when one takes into account the fact that in order for the typical Japanese wage system to be economically rational, quality of work has to increase as the number of

years of service or age increases. For female workers, career prospects in this sense were very limited, thus fewer opportunities existed to enhance their quality level. Through their employment as dispatched workers, alternatives to quality improvement were found.

This probably also explains the fact that almost 7 out of 10 temporary workers are working the same number of hours a week and the same number of days a month as full-time employed workers. And though -- wherever research into this topic was done -- the reasons for being employed as a temporary worker vary strongly, it would appear that only a small proportion (9 per cent for France) of this workforce prefers this kind of work per se and that 75 per cent of these workers (again for France) had accepted this kind of work simply because they had no other choice and they did not want to stay unemployed.

No significant differences were presented in the coverage of occupational specialities by the temporary services industry. In fact, the whole range from managerial functions to clerical support is covered, with the distribution of supply not at variance with what may be expected. The United States report presents some detailed accounts indicating that the office market accounts for more than 50 per cent of temporary help business, industry for 30 per cent and the medical market for 10 per cent. From the demand side, a 1981 survey sample showed that 69 per cent of companies surveyed (in the United States) used some kind of temporary help, ranging from 58 per cent for health care firms versus 50 per cent of finance insurance companies to 14 per cent for the retail trade (the share of business services in this, 35 per cent, is noteworthy). The data in the Japanese report are presented differently but also indicate the recourse made to temporary services and notably by the bigger firms.

SOME COMMON TRENDS

The national reports deal rather differently with the historic-economic background of the growth and impact of the service sector. Many examples presented in that context are derived from, or directly related to, the banking sector and the information services. This being the case, however, what is valid for these sectors in many respects seems to be a reflection of what is going on elsewhere in the service sector and, consequently, can be very tentatively taken to refer to the service sector as a whole.

As far as jobs and skills are concerned, we learn that -- apart from the already well-known facts of a further decrease of simple and repetitious work and the upgrading of remaining activities -- there seems to be a tendency towards differentiation of job content by job description (the "specialisation" we saw in the German report and which should, by the way, not be confused with the concept of multiskilledness, the first referring to the organisation of work, the latter to how to perform the job) and a more clearly defined division of work, jobs and activities. In the French report it is suggested that a further rationalisation, a stricter personnel policy and the substitution of capital for labour might finally decrease the present job growth rate.

The average service worker has to be flexible, have a broad competence, and to understand how production works. In the Swedish report, this is called the "holistic" approach. Translated into terms of skill formation, we could, in imitation of the United States report, list three main skills. Firstly, workers should have the ability to plan their day and allocate their own scarce time resources over competing goals. Secondly, they have to interact in a complex interpersonal space, and last, but certainly not least, they have to think more comprehensively -- in other words, the skills of acting and thinking in dynamic settings as well as the skill of acting in a strategic manner (27).

It goes without saying that the activities of the "third kind" -- which the Japanese report calls the "new type service" and which the French report calls the services de compétence and services d'externalisation -- have already substantially affected OECD economies. In addition, the recent development of technological innovation, particularly information technology, has reinforced the service sector itself by generating and expanding the information business, by improving efficiency, by exploring new markets, by the commercialisation of (new) products, etc.

As a result of these developments, work patterns have greatly changed, and we can only repeat here what has already been mentioned elsewhere (2) that the tendencies towards specialisation and professionalisation have been confirmed. The products of the service sector tend increasingly to be more client-oriented and of improved quality.

Also confirmed at this stage of our research is the "blurring" of the activities under consideration. A growing part of the service sector delivers services to manufacturing enterprises, while at the same time the tasks with a service-like character within industry have increased. In this respect, the Swedish report mentions the fact that as a parameter of this tendency one may note that the number of white-collar workers in industry has increased by approximately 60 per cent.

It goes without saying that the developments with regard to integration of data banks and the setting up of product-oriented data banks have an enormous impact on work structure and skills in the sectors directly affected (such as banking and information services). In the first place, it is the employee who is first in contact with the client who is confronted with new skills. Actually, these new skills happen to be the same as those we have already seen, although they are further emphasized in this sector. So, therefore, this employee needs to be able to plan his/her time, is involved in selling to customers in a complex interpersonal setting, and has to have an integrated understanding of the firm's products and services. As a result of these evolutions, work patterns have greatly changed and the distribution of work between the different tiers, job contents, and skills has been greatly influenced (28).

Here it seems appropriate to underline the apparently common overall changes in skills that are the result of market forces, organisational restructuring, and, importantly, technological changes, and which were listed above. In doing so, we should emphasize that in whatever sub-sector of the services, the "product" is the improvement of the service rendered to the client either by increasing the value added to the client or finding

alternatives (e.g. in the health sector alternatives other than hospitalisation). It is this client-perspective of the services, rather than normal consumer relations, that determines the job and therefore the skills needed.

Chapter VI

UNANSWERED QUESTIONS

It was already clear at the start of this phase of our enquiry project, that we would be left with a great number of unanswered and partially answered questions. Even where the international co-ordinating team had the opportunity to study one sector more in detail, the findings do not permit definite answers.

This does not exclude, however, the fact that the national reports offer definite opportunities for the formulation of new research questions and tentative hypotheses. Indeed, in some of the reports interesting theoretical models have been developed which need some further discussion in this context. The French report, for example, clearly presents some thought-provoking ideas regarding the developments in labour markets and for mobility (29).

The questions that still have to be answered require not only or not always further research; in a number of cases these deserve rather a political statement. In this respect, we may refer to the meeting of the Education Committee at Ministerial level (Paris, November 1984) where it was agreed that "rapid change also implies that education and training -- post-compulsory, higher and recurrent, formal and non-formal -- must be organised so as to allow all citizens periodic access to a diversity of learning opportunities throughout their lives" (30).

Fundamental political questions concerning the educational domain are also to be found in a Secretariat Note on "Education and Labour Force Adjustment: the Role of Education in Increasing Employment and Reducing Unemployment" as a contribution to the OECD Education Committee's project on

noted, for instance, that in the software industry recruitment criteria seem to be rather on personal attitudes than the specific content of educational background. In the health sector there is an increasing market for technological change. So far the upskilling in that respect in this sector seems to be rather unstructured. The traditions in the banking sector tend -- at least for some tiers -- to be broken down where skill formation is concerned. Will we be able to indicate in more detail how and where the educational system is or has to be affected with a view to responding to these changes?

It seems to be that the main challenge for educational systems is neither the adaptation to new technologies nor the adaptation of vocational systems to changing job contents. Rather, the main challenge is addressed to educational systems as a whole and in two ways

-- from the point of view of the capacity to raise the educational level of young people entering the labour force and to avoid early elimination of some of them whose basic levels are insufficient;

-- from the point of view of promoting new attitudes such as creativeness, adaptability, capacity to adjust to a changing environment and to work in teams, a broader understanding of the international environment (better knowledge of languages), etc.

The importance of national cultures for the use of technology and the development of employment is nowhere as evident as in vocational education and training, which is not surprising as educational systems are a pre-eminent expression of national culture. In the five countries studied there are two main forms: the firm-based (Japan and Germany) and the school-based training. The firm-based training systems open the opportunity for a high-valued integrated development of technology use and qualified manpower in accordance with changing company strategies. Such an integrated development implies a rather flexible and easy adjustment in terms of technical qualifications without having recourse to, and the delay in waiting for, changes in the curriculum of in-school education.

This adjustment, especially, takes place in a company-specific setting since it is the applied technology that counts. Integrated development also means that technological innovation and application can be adjusted to the actual workforce, which is a great advantage for the firm but is also very costly at the same time. In contrast to this, there is the school-based system which is less costly for industry but is much less attuned to the

-- responsibilities regarding technical training and retraining and, within this realm, the role of internal courses and external training institutions. We note, in fact, that in some countries a real "training market" is booming. What are the characteristics of this latter development?

So far, it has been the big companies that were the focus of attention in this respect. It should, however, be kept in mind that a considerable proportion of employment in the service sector finds its place in small and medium-sized companies. What role could be played by these latter companies; how might their educational effort be organised and what does this imply for recruitment policies, career patterns and mobility? In particular, when we relate this to the fact that firm-based training varies with branches and size of the company, imbalances may be created regarding the qualifications of different groups on the labour market which may hinder mobility. The position of women in this respect and of the retail trade sector will be of special interest.

Future research should also study the question of the stability of small (particularly software) firms that specialise in the development of new products and highly-specialised services. As apparently these specialised firms will have great problems in extending their markets because of either financial or organisational prerequisites, their products and know-how ultimately may be taken over by bigger and stronger firms. Such concentration tendencies raise questions regarding the influence of these tendencies on personnel recruitment strategies of big enterprises.

The national reports do not explicitly deal with or present only some global data regarding the relations and processes between educational attainment and the labour market. Certainly, the least educated fill the weakest niches in the labour market in contrast to the highly-qualified in general who have the best opportunities. This takes insufficiently into account, however, the dynamics of the rapidly changing markets. Being highly qualified at this moment does not necessarily imply a continued favourable labour market position after "x" years, either in the external labour market or in the internal one.

As a consequence, we have to deepen our research with regard to the various groups operating in the labour market, i.e. the evolving segmentation of the labour market between "losers and winners". Although we learned from the reports that the labour market in the service sector favours the young, the better qualified, and the female labour force, it is seriously questioned whether this pattern is valid for the whole of the service sector. This certainly is evident in health services and temporary work, but females are occupying positions most vulnerable to This phase of the project scarcely, if at all, how other segments in the labour market, like youth, der workers, are affected and what this might imply for areer opportunities, etc.

important item we note in the French report is whether there is people receiving salaries or being self-employed. In some ches of the service sector (e.g. business services) we note a tendency wards self-employment, but in hotellerie and in employment as a whole, it is

diminishing. These tendencies raise important issues for further study as their impacts on the social and economic structures of our societies imply important policy options.

There are considerable differences between countries as to the relative weight of employment and of employment growth in the public and in the private sectors. In this regard it is interesting to note that sometimes there is a direct competition between the two as suppliers of identical services -- for instance in the financial sphere and the health sector. Future research should take into account the effects of this, and also the tendency to privatisation of public services for the labour market. Here, particularly, we will be confronted with cultural differences between the countries concerned.

We have already indicated the importance of the formula of temporary work for the entrance into the labour market for some categories of labour. In view of the relatively modest number of temporary workers, it is not considered to be a factor influencing the structure of the labour market. On the other hand, with the longer duration of contracts and the upskilling of dispatched workers, the internal labour structure of user firms may be affected. It is not clear, however, whether as a consequence there will be a division in user firms along the lines of those fully employed and the temporary workers or along others as, for example, the skills level.

All the reports covering the temporary service sector underlined this increased qualification in temporary services. This raises some important additional questions that as yet have not been answered and offer interesting fields for further study. In particular, if it is true that such a fundamental change is going on, in other words, if the future of this profession will be conditioned by its capacity to supply companies with highly-qualified employees -- this would mean that dispatching firms will also have to recover their investments in education. What will follow from this trend in terms of competition on the market for the firms involved and for the labour market as far as individuals are concerned?

If the United States report is accurate in saying that companies may invest in a core group of workers while drawing on temporary help services, this may at the same time make these firms rather vulnerable and lead to fundamental questions regarding the division of labour between dispatched workers and full-time employees.

The Japanese report raises the interesting questions as to whether the future competition in this temporary work industry will be severe and therefore whether the necessary training should be conducted by these firms and who is going to bear the costs of education and training. Will it be the workers or the firms? And what measures have to be adopted to enhance the stability of the internal labour market once workers find themselves, because of their improved qualification, in a better position in both this internal and the external labour market? Some companies give their dispatched workers the right to training courses after they have worked for them for a specified period.

So, apart from some global knowledge concerning a number of specific employment sectors, we have almost no evidence of what segments of the labour

market are particularly affected by the developments in the service sector. For the greater part, we have only data from case studies, i.e. very specific situations.

In the French report, for example, it is explicitly emphasized that technological innovation has been a decisive factor in decentralising financial services, it being omnipresent in information services while in the health sector substantial modifications in the organisation of work are imminent because of technological innovations. These needs are confirmed by the mere fact that in a country like the United States, more than half of all technical workers use desk-top terminals (1985). For professionals this number was around 40 per cent, and for all clerks it rose to about 25 per cent.

With respect to the organisation of work, solutions seem to depend on the companies' style and also size, whereas technical innovations could enable processes of decentralisation and horizontal integration of work processes. There is a need for strategies for the qualification of manpower, especially combinations that are based on the organisation of work.

More information is also needed with regard to the "blurring" between sectors, for example between banking and insurance companies as well as in respect to the tertiarisation in the goods-producing sector. Another interesting issue we note and which deserves further study is the externalisation which on the one hand may create jobs in the service sector but, on the other, narrows down employment growth because of the inherent aspect of rationalisation. In Germany, for instance, we note that processes of externalisation are of increasing importance in industry (32) particularly with regard to software development. Such a strategy often has specific consequences for recruitment and qualifications of new personnel as they are sometimes required to have more technical qualifications (in the field of information technology); other times the integration of technical and commercial qualifications is preferred.

It would also be interesting to know whether the configuration of the Japanese labour market in the information service sector and the emerging multiple career paths will conform to the tendencies mentioned in the French report (see also Chapter IV). These tendencies might occur in a labour market which is very differentiated, open and polarised between "intellectual" work and manual work. A first tendency, then, would be towards the formation of a relatively closed and less mobile market for the more important jobs for which multi-skilledness is preferred rather than specialisation. A second tendency might be the formation of a very mobile market for the highly qualified. Finally, we might expect a more precarious labour market for the less qualified, a level in which an increase in unemployment, or at least a strong slowdown of job growth, is already discernible.

Further training raises particular problems for the specific groups of "winners" and "losers". For the high-level specialists much in demand, the question of whether it may be the permanent responsibility of firms to train them and how they should be trained requires further investigation. For "losers", the questions are whether they can be retrained, how this can be achieved and whether such training is the responsibility of the firms. In fact, we already noted that in the German report it is explicit that for this last category, in which we find clerks, tellers, shorthand-typists, and the

like, the number of jobs is decreasing, in contrast to an increase in jobs requiring higher qualifications. It is expected that the need for desk clerks will further decrease.

Other interesting issues that arise in some of the reports are the opportunities offered by the developments in the service sector for decentralisation as far as the hierarchy in work organisation is concerned and the deconcentration potential of economic activities where the activities themselves are concerned. For the latter, this may have important consequences for regional economic policies. According to the Japanese report, the expansion of business operations into local regions is a means of obtaining personnel. The rapid progress of information transmission technology is eliminating physical and psychological distances between urban and rural areas, thus making it obsolete for the business demand and production site to be in the same area. However, the software industry in Japan is still strongly concentrated in Tokyo and Osaka.

In the Swedish report, this is indicated as the "Centrum/Periphery" perspective. The report indicates that business service industries tend to be concentrated in urban areas, thus widening the gap between different regions (in Sweden) in regard to population, job opportunities, etc., and resulting in a regional imbalance. In the sector of system development, data recording and computer centres, 55 per cent of the employment is concentrated in the Stockholm area; 70 per cent of the total employment in this sector is in and around the big cities (including Stockholm). Also, for Germany, regional differences seem to have increased rather than decreased.

Although the United States report offers insufficient evidence for following these tendencies, developments there may even be on a much larger geographic scale. By emphasizing the fact that the service economy is also an information economy, the report implicitly confirms the trend that some American firms are transferring "routine data processing and other service jobs to Asia, the Caribbean, Ireland, and other places where people can be hired at low cost" (33). One can hardly imagine the repercussions these trends will have for OECD economies in the near future.

In addition to this, it should be mentioned that the growth of the service sector has given rise to some doubts particularly with regard to the real significance of production growth in this sector. According to statistics from the American Productivity Center (published in the Wall Street Journal, 9th February 1987), the growth in services productivity as a whole has been on the decrease ever since the 1960s and has been slightly negative in the period 1979-1985, in contrast to a 1.5 per cent growth in the same period in the goods-producing sector. Care has to be taken, however, since statistics, as yet, do not cope most accurately with the service sector. Nonetheless, this stagnation is also mentioned in the French report (34). The German report specifies that the developments, both with regard to employment and productivity in the service sector, have only been made possible by a massive recourse to new technologies. The relative decline should be attributed to processes of rationalisation and saturation. In terms of GNP (market prices) we note the relative decline of all economic sectors in Germany (35). There was, in the period 1970-1980, a change of -38.0 per cent, -14.1 per cent and +18.6 per cent for the agricultural, good-producing and

service sectors, respectively, and for the period 1980-1985, these numbers were -19.0, -5 per cent and +5 per cent.

To base firm conclusions on this material would be precipitous. What it does is show the urgent need for detailed statistical data so as to gain more evidence on the developments in the various economic sectors and within the different branches of the service sector itself. It goes without saying that the verification of these trends would be of tremendous importance.

In reflecting on the original key questions that were formulated at the start of this phase of the project, it may be concluded that some insight has been gained with regard to skill profiles and skill formation in some branches of the service sector. At the same time, however, new questions evolved regarding the validity and reliability of our findings, viz. in relation to its generalisation and the internal and external labour markets. These labour markets themselves seem to be changing, but we do not have sufficient insight whether these changes are of only a temporary character, what the trends are, and which are the determining factors.

Apparently, in some countries, the service sector is characterised by more mobility than the goods-producing sector. It is not clear why this is the case and why it is not so in other countries. But even in the case of countries with rather "closed" mobility and remuneration systems, we did note that parallel systems are going to evolve. How these parallel systems will further develop, how they will compete with the "regular" system, how they will interfere with and are influenced by the new institutions on the labour market still remain open questions.

Also, at this stage of our research, it has been almost impossible to give more than global answers to questions regarding the effects of national cultures and historical contexts, i.e. in what way specific cultures and contexts determined the effects of technological and organisational change. Neither have these questions been the subject of systematic research at national level. The fact that, for example, the temporary work sector in Japan is much more strongly feminised than in France may be explained by a stronger traditional culture in Japan or the relatively closed labour market for women compared to the French; but apparently this does not account for the similarities in information services in Japan, France and Germany insofar as trends and the position of women are concerned. Therefore, more thorough investigations are needed to arrive at a clear understanding of the cultural and historical mechanisms affecting human resources.

In this respect, comparative studies should focus particularly on two issues:

-- firstly, whether the use of new technologies is progressing only in the form of an adjustment to existing cultural frameworks or whether it also leads to the adaptation of initially different traditions in the provision of services;

-- secondly, the increased internationalisation of the service sector requires attention to how national traditions are changing and reflected in specific branches of the service sector.

By way of example, we refer to the banking sector where, in some countries, traditional financial transactions have not been in cash (France, United States) and thus self-service for clients by technological innovation was easily promoted. In other countries (Germany) financial transactions were always predominantly in cash and of a much more personal character, which led to a much more sceptical approach by management when confronted with new technological opportunities.

With reference to the increased internationalisation of the service sector a strict methodology should be taken into account. A systematic comparative study will take place at three levels:

-- a dynamic structural analysis of the service sector taking into account notably the employment trends according to professional categories, organisational forms, market and competition aspects, etc.;

-- the second level will be represented by specific case studies where the focus of attention will be on the analysis of social, technical and cultural factors and how these influence processes of change in the firm and how they are themselves influenced by specific enterprise objectives and environments and, as a result, influence the structure of qualifications;

-- finally, changes will be studied at the societal level, it being understood that these changes are related to public training and technology policies or that they refer to general changes of normative orientations and styles of communications.

ANNEX

In accordance with national research traditions and interests, there was no complete congruency in the sectors studied or in the methodology. The breakdown below shows the areas covered and by which method.

	United States	Japan	France	Germany	Sweden
Banking					
General presentation		x	x	x (inc. ins.)	
Case studies	x	x		x	
Health					
General presentation		x	x		x
Case studies	x				
Temporary Work					
General presentation		x	x		
Case studies	x				
Business Services					
General presentation			x	x	
Services rendered to industry	x		x (general)		x
Information services (inc. software prod.)	x	x (general and case studies)	x	x	x
Service Sector					
General presentation		x	x	x	x

NOTES AND REFERENCES

1. "New Technology and Human Resource Development in the Automobile Industry", OECD/CERI, Paris, 1986 (General distribution).

2. "The Evolution of New Technology, Work and Skills in the Service Sector", OECD/CERI, Paris, 1986 (General distribution).

3. Human Resources and Corporate Strategy: Technological Change in Banks and Insurance Companies, by O. Bertrand and T. Noyelle. OECD/CERI, Paris, 1988.

4. "Technological Change and Human Resource Development: The Service Sector, Proposal for Future Work", OECD/CERI, Paris, 1987.

5. The national reports are:

   -- German Report
   -- French Report
   -- Japanese Report
   -- Swedish Report
   -- United States Report

   They can be obtained from the CERI Secretariat within the limit of existing stocks.

6. "Training in and by Industry in the Context of Post-Compulsory Education and Training", report on a joint meeting of management and trade union experts under the OECD Labour/Management Programme. OECD, October 1986 (General distribution).

7. According to Amin Rajan in his study on the service sector in the United Kingdom ("Services in the Second Industrial Revolution? Business and Job Outlook for U.K. Growth Industries", Institute of Manpower Studies, Butterworths, London, 1987, pp. 6-7), the "main beneficiaries for the new jobs are likely to be female, part-time and young employees:...around two-thirds of them will accrue to women; about a third to part-time employees; up to a quarter to the young; and a tenth to the self-employed". It is indeed on the employment chances of women that our reports present the most detailed data. (See also OECD Employment Outlook 1986, Table 41, p. 119, Table 18 on page 51 and Table C on page 138.)

8. U.S. Report, second draft, page 56.

9. German report, page 120.

10. Japanese report, Statistical Annex Table I-11.

11. Reports on phase II of the study regarding human resource policies are:

United States
France
Sweden
Japan
Germany

These are internal documents only.

12. German report, page 82 (para. 195).

13. Japanese report, page 42 (para. 126).

14. French report,page 160 (para. 403).

15. Ibid, page 10.

16. Ibid, page 69 (Table 5.6).

17. German report, page 61 (para. 154).

18. French report, page 147 (para. 387).

19. Swedish report, page 34 (para. 135).

20. U.S. report, paragraph 93.

21. Japanese report, page 84 (para. 235).

22. Rajan informs us that for the United Kingdom (see note 7) the share of female employees in the economy increased from 48 per cent in 1977 to 49 per cent in 1985. At the same time the share of part-time employees grew from 14 to 18 per cent. According to this source, over half of the job growth in the current decade has accrued to female employees; for the 52 000 new jobs in the banking sector in this decade, over 45 000 accrued to female employees, and 30 000 to part-time workers (pp. 195 and 118, respectively).

23. Paul S. Adler: "Skill Formation in U.S. Accounting Firms: Pressures, Trends and Options". Department of Industrial Engineering and Engineering Management, Stanford University, Stanford, CA., 94305-4024, August 1986.

24. Amin Rajan in his study on the Service Sector in the U.K. (see note 7) arrives at similar conclusions, identifying the need for multiple skills arising from one or more of three sources: product diversification, organisational restructuring, and use of information technology (p. 225).

25. German report, page 52 (para. 117).

26. The term "information service industry" is used in a broad sense covering software production, security services, accountancy services, data agencies, etc. Most references in the national reports, however, are to software services. The German report defines this as: "software services include all the consulting services offered by the suppliers of software required in conjunction with the sale and the implementation of a software product to include support, service and training offerings" (page 77, para. 175).

Information processing engineers are those people performing processing work at computer manufacturers, user companies of computers, software production companies, and the like. Also, the concept of "software specialist" is rather complex.

According to the German report, it comprises: systems analysts, application and system programmers, computer centre specialists, compute marketing specialists, computer salesmen, computer scientists and specialists, miscellaneous specialised computer professions.

27. Rajan (see note 7) specifies four kinds of skills which are very similar to those presented by Hirschhorn (responsible for the United States report). Social skills are needed for effective inter-personal communication, product knowledge for effective marketing and selling of mainstream as well as ancillary services, keyboard and diagnostic skills for effective interface with systems and solving of problems that arise their use, and, in addition, entrepreneurial skills for ensuring the viability of individual cost and profit centres.

28. Rajan points out that higher-level employment opportunities are created but only for those with high qualifications or career potential. As the technology and business mix have given rise to specialist skills, the result is that generalists are needed to provide for the interface betwe specialists and the rest of the organisation.

29. French report, inter alia pages 35-38, 55-58, 129.

30. "OECD Ministers Discuss Education in Modern Society", OECD, Paris, 1985 p. 45 (General distribution).

31. Swedish report, paras 188-190.

32. German report, pages 91-94.

33. The New York Times, 14 December 1986.

34. French report, page 8.

35. German report, page 4.